PATENT APPLICATION
Attorney Docket No. Q48849

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Yasuo HIMURO

Appln. No.: 08/997,368 Group Art Unit: 1733

Filed: December 23, 1997 Examiner: S. MAKI

For: PNEUMATIC RADIAL TIRE FOR ALL-SEASON PASSENGER CAR

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Brief is submitted following the submission of a Notice of Appeal of December 6, 1999. An Amendment pursuant to 37 C.F.R. § 1.116(c) is submitted to address formal issued raised by the Examiner in the Final Action of July 6, 1999. A copy of the claims as they stand rejected appears in the Appendix to this Brief.

I. REAL PARTY IN INTEREST

The real party in interest is Bridgestone Corporation, Assignee of this Application.

II. RELATED APPEALS AND INTERFERENCES

There are no other Appeals and Interferences known to Appellant, the Appellant's legal representative or Assignee which will directly effect or be directly effected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-10 are pending in this application. Claim 1 is the sole independent claim. Claims 1-10 are the subject of this appeal.

IV. STATUS OF AMENDMENTS

Applicant has filed concurrent with this Brief on Appeal an Amendment under 35 U.S.C. § 116(c). That Amendment is before the Examiner for action.

V. SUMMARY OF THE INVENTION

This invention is directed to tire technology and, in particular to tires of the so-called all-season type. These are tires which are used in both summer and winter conditions, that is on both dry road surfaces and those which have snow and ice.

The prior art is illustrated in Figure 3 and identified beginning on page 1, line 7 through line 15. This tread pattern can be characterized by a number of circumferential grooves which are generally straight (running up and down the sheet) and a plurality of slant grooves (running from the lateral end of the tread and inclined in a give direction). The combination of the circumferential and the slant grooves divides the tread portion into a series of blocks, that is land areas surrounded by grooves.

As set forth in the specification, a difficulty of this tire is that while it exhibits excellent dynamic performance in terms of drainage, that is the release of water when running on wet surfaces, the same tire must have a steering stability, adequate braking performance and the ability to run on snow and ice. Many of these criteria are considered mutually conflicting and at the same time the tire must have a sufficient resistance so that it does not wear out an early stage.

The invention depicted in Figures 1 and 2 represents a significant departure from how the conventional tread pattern for an all-season tire as exhibited in Figure 3. By referring to Figure 1 and the discussion beginning on page 7 at line 9, the tread pattern there comprises a tire having two zones across its tread width TW. The central zone TC is bounded on each side by side zones TS. As in the prior art, a series of circumferential grooves 4 and 5 in combination with slant grooves 1 and 2 divide the tread into a series of blocks. These are identified as elements 3.

The slant grooves are divided into two different types, those which have a gentle inclination, denoted by numeral 2, and those which are more steeply slanted, denoted by numeral 1. The pattern has twice as many gently slanted grooves 2 as it does steeply slanted grooves 1. This is accomplished by the shape of the block 3 such that the interval between the gently slanted grooves 2 is ½ of the interval between the steeply slanted grooves 1. As illustrated in Figure 1, one of the gently slanted grooves 2 is in communication with the steeply slanted portion, and the gently slanted grooves open to the tread end TE. Element 6 is a sipe formed in the blocks 3.

In accordance with this invention, as set forth on page 9, beginning at line 3, each of the blocks has a chamfer. This is a tapering of the block surface so that the overall height of the block is reduced. The block has its highest point at the tapered top end. It is then tapered over a discrete length, 10-30mm in a longitudinal direction of the block so that the block overall height generally decreases. The direction of the chamfer is in the longitudinal direction of the block. Thus, as viewed in Figure 1 the chamfer would be from the tip portion toward the circumferential groove 5 or, generally in the longitudinal direction of the block itself.

The purpose of this chamfering is set forth on page 5, beginning at line 10. That is, given the configuration of the blocks having a tapered top end the overall performance of the tire may tend to degrade in terms of steering stability and resistance to uneven wear because the block itself lacks in rigidity. Block rigidity can thus be enhanced by reducing the depth of the block itself, that is the height of the block from a groove bottom. Thus, by reducing or chamfering the block in the manner set forth the rigidity of the block is improved and degradation of the steering stability and resistance to uneven wear is improved.

VI. ISSUES

Whether claims 1-10 are unpatentable under 35 U.S.C. § 112, second paragraph, as being indefinite?

Whether claims 1-10 are unpatentable under 35 U.S.C. § 103 over Europe `332 in view of Europe `718 and Japan `025 and optionally either Europe `685 or Japan `215?

With respect to the two issues addressed, it is believed that the Amendment under 35 U.S.C. § 116(c) obviates discussion of the rejection under 35 U.S.C. § 112, second paragraph,

and in any event depending on the outcome of the substantive rejection predicated on obviousness this issue can be resolved with the Examiner.

VII. GROUPING OF CLAIMS

The claims stand rejected as a group. The patentability of claims 1-10 can be assessed by considering the patentability of the broadest claim, claim 1.

VIII. ARGUMENTS

As a predicate to appreciating Appellant's contention that there is no *prima facie* obviousness, the scope and content of the prior art needs to be assessed together with an understanding of the serial modifications spliced together by the Examiner which formed the basis of the rejection. While the Examiner relies on five references, others have been made of record which also show a tread which is directional or unidirectional and has a series of blocks formed by a combination of circumferential grooves and slant grooves. Typical, for example, are the two patents to Hirumo `364 and `699. Those references have not been applied by the Examiner even though both show a combination of steeply and gently slanting segments. Likewise, Kuhr `042 shows circumferential grooves 5 and 6, inclined grooves 7 and 8, and land portions, denoted as profile elements 2 and 3. Uemura illustrates, in Figure 5, circumferential grooves M and a series of axial grooves G having different degrees of slant, that is angular orientation with respect to the circumferential center line. They divide the tread into a series of land portions which are either circumferential ribs or blocks defined between a circumferential groove and a slant groove.

Appellant respectfully points out then that the prior art shows in a variety of different tread patterns the fundamental architecture which Examiner has called from Europe `332. The apparent basis however, is the start of a selective reverse engineering of the prior art.

The Examiner's reliance on Europe `332 is for a tread pattern in which blocks 7 are defined by circumferential grooves 2 and slant grooves 13. The Examiner relies on this tread pattern given the presence of slant grooves 9a. Thus, as illustrated in Figure 1, the number of blocks in rows 3, 4, 5 and 6 gradually increases because of the additional number of transverse cuts forming grooves. By this technique, the tread is provided with gradually increasing

longitudinal stiffness from the outer edges toward the equatorial plane represented by the center line X-X. The purpose is to reduce the mobility of the blocks which are formed, thereby suppressing noise. While the Examiner, on page 6 of the Office Action dated January 27, 1999, attributes this reduction in noise because "the blocks in the central zone are larger than the blocks in the side zones", more properly it is the difference in rigidity that is, the longitudinal stiffness of the blocks which acts as the noise suppressant as opposed to their size or area.

The Examiner concedes that Europe `332 does not disclose chamfering each block defined by a central groove and the steeply slant grooves (Office Action January 27, 1999, page 6). More properly, Europe `332 does not disclose chamfering or tapering any block whatsoever within the tread pattern. Rather, the pattern is directed to one in which rolling noise is reduced while maintaining the efficiency of the tire in terms of its directional control and water drainage. As Europe `332 makes unambiguously clear, these block patterns given the presence of longitudinal and transverse grooves produce pattern noise (column 1, lines 36-42). Attacking that problem, the reference has a differential stiffness in the blocks from the outer side edges inwardly toward the equatorial plane (column 3, lines 18-21; column 5, lines 26-31).

The reference achieves this differential in stiffness of the blocks based on the recognition that the contact pressure exerted by the blocks disposed close to the equatorial plane "is much lower than that detectable in the blocks close to the outer edges 1a of the tread" (column 9, lines 46-50). The solution proposed by the reference is to obviate this tendency for greater rubbing, "exhibited by blocks 7 disposed in areas close to the equatorial plane X-X by giving said blocks a greater longitudinal stiffness resulting from the bigger sizes of the latter, which in turn directly result from the smaller amount of the blocks distributed over the circumferential extension of the tread in the center rows 3, 4 (column 10, lines 6-14).

In the face of this unambiguous teaching, the final action relies on two secondary references as suggesting chamfering "each block of Europe `332 which is defined by a circumferential groove and steeply slanted grooves". The two are Europe `718 (equivalent to USP 5,609,699) and Japan `025. The Examiner's analysis represents the classic hindsight application of the prior art which has been uniformly condemned. More over, even if correct will not meet the requirements of Applicant's claim 1 and condition 5 because the tapering is reversed to that required.

First, with respect to both secondary references it can be appreciated that the formation of the blocks results in only one corner having a highly acute angle portion as a consequence of the steepness of the slant grooves. In Japan `025, as illustrated in Figure 1, this is the apex of the block in the region (*l*) between the circumferential groove 1 and a steeply slant portion groove 3. It is shown as a darkened portion at the tip of the groove. In the case of Europe `718, similarly the shaded portions illustrate those sections of the elongated block between the steep slant groove portion 4 which are chamfered. Both tire patterns are highly directional patterns. Only one tip is thus chamfered.

In the first instance, an artisan would clearly recognize that in the case of Europe `332 this directionality does not exist and chamfering, if considered, would have to be applied to more than one edge of a block for purposes of consistency. For example, the blocks 7 in row 3 both have highly acute portions, would only the portion of the block adjacent the circumferential groove 11 be chamfered? Alternatively, would opposing acute angle portion be chamfered so that a localized stiffening of the blocks would occur.

Secondly, in row 4 the groove 13 still forms a steeply slant portion at the same given angle as the acute portions in row 3, would this corner also be chamfered? The issue is one of having a gradual variation and longitudinal stiffness as Europe `332 illustrates in Figure 2. Localized chamfering would obviously provide a degree of discontinuity from that sought.

More over, for purposes of consistency, the chamfering would have to be uniform on both sides of the center line such that the chamfering on one block edge would be at the stepping-in portion of the block while on the other side it would be on the kicking-out side. This irreconcilable difference between directional and non-directional tread patterns would clearly be recognized as an inconsistency in the prior art.

Thirdly, the chamfering proposed by both Europe `718 and that in Japan `025 is one in which the edge of the block is cut away. This is illustrated in Figures 2 and 3 of Japan `025 and Figure 2 of Europe `718. Applicant chamfers in the opposite direction, that is to gradually shallow the depth of a surface of a block from the tapered top end in the longitudinal direction. Consequently the prior art would not chamfer in the direction required by the Applicant as condition 5 in claim 1.

Moreover, both Europe `718 and Japan `025 illustrate as other tread patterns (both in Figure 4) those which are similar to that of Europe `332 in which chamfering does not exist. The similarity is obviously striking in that all of those patterns are defined by a circumferential rib bounded by two circumferential grooves and then, outward from each of the circumferential grooves a series of blocks forming a transition into the side area of the tire in which the blocks are generally oriented in the lateral direction (perpendicular to the tread edge). The consistency then, in terms of tread pattern and the instruction not to chamfer that pattern is clear.

Stated differently, if merely chamfering acute angle portions of blocks was considered obvious, then it would be expected that both Japan `025 and Europe `718 would so instruct that within the block patterns of Figure 4 acute angle portions between steeply slanted groove portions (12 in Japan `025 and 21 in Europe `718) could also be tapered. That level of suggestion or guidance does not exist.

Only in the final action does the Examiner extrapolate beyond that which the prior art provides no guidance or motivation whatsoever.

The final action then applies either Europe `685 or Japan `215 as disclosing an arrangement and orientation of sipes. Again, the Examiner's analysis is one simply predicated on hindsight.

The purpose of sipes as Europe `332 makes unambiguously clear is two-fold, it increases the tractive power of the tire and cooperates in performing efficient action in terms of water drainage. However, it also contributes to the production of noise (column 1, lines 16-38).

Europe `332 thus points out, accurately so, that tread design is a balance of irreconcilable considerations. By increasing the number of sipes or small grooves, the tire is enhanced in terms of improved dynamic handling and water drainage properties at the same time the noise level of the tire increases. It is by balancing those considerations that overall improvements are achieved. The final action in somewhat of a "willy nilly" sense relies on the third and fourth references as rendering it obvious to provide sipes, that is additional elements to those already shown in the blocks of Europe `332 in view of Europe `685 and Japan `215. This holding is also flawed.

Claim 1 requires "each of the blocks is provided with at least one sipe". This rather routine requirement however, must be placed in the perspective of Europe `332. The tread pattern there, and deliberately so, does not have sipes in many of the blocks. There are no sipes in the blocks in either rows 3 or 4. Of the blocks forming the most lateral set, outside those in rows 6 also do not have any sipes.

The reason as Europe `332 make unambiguously clear is that those blocks close to the circumferential center line should have increased stiffness to reduce noise. Adding sipes decreases stiffness of the block by further sectioning it. The Examiner's holding thus cuts directly against the teachings of Europe `332.

Furthermore, the Examiner's holdings cannot be squared with either Japan `025 or Europe `718. There are no sipes whatsoever in Japan `215 for the reasons set forth in Europe `332, to do so would simply increase the noise of the tread pattern. Rather, what performance characteristics are enhanced and achieved by the directionality of the tire pattern utilizing the steeply slant grooves. The same is true with respect to Europe `718.

The Examiner totally ignores the totality of the prior art which leads away from having the rigidity of all blocks reduced by the presence of a sipe. Not only does the primary reference provide a lack of motivation for the holding by the Examiner, but also leads directly away from his conclusion.

Europe `685 and Japan `215 are also instructive for another reason, they provide further evidence that one of working skill would not chamfer blocks in a tread pattern which have already been modified by the use of sipes to lower their structural rigidity. Reference is made to Figures 6, 11 and 12 of Europe `685 and to Figures 1-4 in Japan `215. As can be appreciated in each of those references, the presence of steeply slant grooves which define highly acute angle portions of blocks is present in all of the tread patterns. Chamfering does not occur because the rigidity of those blocks is altered by the presence of sipes.

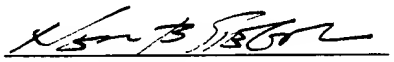
The prior art thus substantiates Applicant's fundamental contention that tread pattern design represents a balancing of conflicting and irreconcilable requirements. Applicant's claims here define five requirements both in terms of the orientation of the grooves and their number together with characteristics of the blocks formed by the grooves. It is this combination of slant grooves and their orientation which provides drainage characteristics which are enhanced and yet

the blocks each are provided with a sipe and have a unique degree of chamfering for purposes of increasing rigidity away from the tapered top end portion.

Consequently, there is no *prima facie* obviousness in the final action. What is present however, is the meticulous reconfiguring of the prior art using Applicant's description as a guide. A reversal of the rejection is thus respectfully requested.

The present Brief on Appeal is being filed in triplicate. Appellant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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